

- ☒ fossil energy
- ☐ environmental
- ☐ energy efficiency
- ☐ other

INTERNSHIP LEADS TO WORLDWIDE SUCCESS OF COMMERCIAL COAL CLEANING TECHNOLOGY

States Impacted:

Virginia, Kentucky, West
Virginia, Illinois, Pennsylvania,
Colorado, Georgia, Tennessee

Benefit Areas:

Environment, Lower Cost of
Electricity, Technology
Development

Participants:

Pittston Coal Company,
Coastal Coal, Cypruss Coal,
Cypruss Sieritta, BHP, Thiele
Kaolin, Luzenac, Kenelton
Industries.

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WEBSITE:

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Description

In 1980, a summer faculty appointee from Virginia Polytechnic Institute and State University began experimenting at DOE's Federal Energy Technology Center on the use of 'microbubbles' to separate clean coal from its impurities. The initial results showed promise, and the professor subsequently won a federal University Coal Research grant to further develop the technology.

Today, the summer experiment has become a commercial success story. The technology, which is generically known as microbubble flotation is now marketed under the trade name Microcel™. Currently, the technology is being sold worldwide for use at coal and mineral processing plants, with applications in the United States (in eight states), Korea, China, Australia, Europe, and Chile. A major coal company in Australia, which selected Microcel™ over a competing domestic technology, installed 16 Microcel™ units at its largest mine. The company is in the process of installing larger units in a neighboring mine. The technology is being used for various non-coal minerals processing applications around the world.

Goals:

The goal of the Microcel™ developmental effort was to improve current flotation practices in cleaning fine-sized coal. This was achieved by using microbubbles, which increase the bubble-particle collision probability, and as a result, increase the fine coal recovery.

Tangible Benefits:

National: The Microcel™ technology can produce cleaner coals for electricity generation and can recover coal from refuse ponds, which in the U.S. are estimated to contain more than 2 billion tons of fine coal. Microcel™ may be instrumental in remediating as many as 6,000 coal refuse waste ponds in the U.S., as well as treating fine coal from current mining operations to prevent further wasting of fine coal. At present, coal companies add an estimated 30-40 million tons of fine coal to ponds each year. Therefore, more widespread use of the technology should help eliminate the waste and keep the environment clean. Also, fine coal is a significant low-cost fuel. For mineral processing applications, the Microcel™ technology is used to improve the recovery of copper, lead, zinc clay, iron ore, etc. around the world.

Regional/Local: By helping companies recover often-wasted fine coal, the Microcel™ technology helps them reduce the cost of the overall mining and processing costs. This in turn significantly extends the life of high-cost mining operations and provides continued employment.